

Taking It To The Streets: Moving Scent Research Out Of The Lab

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ABSTRACT

With a recent surge of interest in the impact of scent on consumers, the trade press and the popular press have been at odds with the academic community regarding the effectiveness of scent in influencing purchase decisions. Academic research has provided scant confirmation of the beliefs, widely accepted throughout industry, that the use of scent has vast power to influence purchase decisions. The bulk of the academic literature has addressed effects other than purchase, and has taken place in the lab, sometimes in “simulated stores.” Most retailers, however, are more concerned with actual sales performance in real stores than with theories about cognitive processes and mediating variables associated with smell and consumer decision making. The growing disparity between popular wisdom and research findings has lead researchers to call for greater collaboration with practitioners and more studies conducted in the field, in a variety of store types, rather than the lab. Shifting research from the controlled lab environment to the field, with its myriad of uncontrollable factors, however, presents special challenges to the researcher which, if ignored, may threaten to invalidate findings regardless of their apparent significance. Following is one account of the difficulties connected with attempting to close the gap between the field and the lab, with implications for researchers and retailers, and recommendations for future research.

Keywords: scent, fragrance, field study, case study

INTRODUCTION AND OVERVIEW

In recent years there has been somewhat of a surge of interest in the impact of scent on human behavior, and specifically on consumer decisions, among members of both industry and the academic community. In 2008, the Scent Marketing Institute hosted the first International ScentWorld Conference and Expo in New York City, attracting over 200 authors, researchers, scent manufacturers and marketing directors from organizations representing businesses, as well as a few academic institutions, from 20 different countries as far flung as Australia, South Africa, Austria, and Thailand. The conference featured columnists from The New York Times and was covered by local New York popular press and the trade press. Ad Age’s online publication carried videos of interviews with various conference participants during the week of the meeting. The conference was tagged a success and the Second Annual conference promises to boast even greater attendance.

Among practitioners, much is assumed about the impact of scent on consumers. Scent is thought to engage consumers and facilitate branding by creating associations with emotions that motivate brand attachment. Some companies have applied for scent trademarks, so certain are they that scent is a crucial part of the overall branding experience. Other companies have created sophisticated devices that detect individuals’ faces within range of target products, estimate the gender of the individual, and dispense fragrances which are considered to be gender-appropriate. Evidence of the impact of scent in the purchase environment for many members of industry, however, occurs in the form of anecdotal data, casual in-house observations, proprietary research of unknown quality, and advice from professional consultants, when the conclusions drawn may be unwarranted. In fact, in one academic review of the studies involving scent, researchers labeled as “myth” the belief that odors operate subliminally to

affect emotion and to influence sales. They reported that “[e]vidence is stacked against the proposition that the simple presence of an odor affects a retail customer’s behavior” (Bone and Ellen, 1999).

Research on scent in the academic community has been deliberate, thus slow to develop, and has provided scant confirmation of the beliefs widely accepted throughout industry. While scent-related research has occurred in the past decade, it represents more a skimming of the surface from a wide variety of perspectives than a plumbing of the depths in any one area, perhaps a characteristic of any new research topic.

Consumer behavior researchers have begun to examine the topic from a wide variety of angles. At the recent annual conference of the Association for Consumer Research, for example, some researchers reported on their investigations into the way that scent is encoded into memory (Elder and Krishna, 2008; Krishna, Lwin, Morrin, and Wirtz, 2008), while others discussed the way that the human brain responds to various scents as shown by functional Magnetic Resonance Imaging (fMRI) (Reimann, Aholt, Neuhaus, Schilke, Teichert, and Weber, 2008). Meanwhile, research from a social psychological perspective investigates the ways that individuals retain articles of clothing of absent loved ones in order to be comforted by the scent (Shoup, Streeter, and McBurney, 2008).

LITERATURE REVIEW

Academic research involving scent and its interaction with perceptions, attitudes, beliefs, and behaviors has focused on two different types of scent: scent that corresponds to central attributes of specific objects, and ambient scent, which is scent that is present in the environment but does not emanate from, or correspond to, a particular object. Delivery systems of the two types of scent differ as well. Scent connected with specific objects is normally delivered locally, while ambient scent wafts throughout the environment under study. In some situations, such as in specialty stores, ambient scent appears to converge with product-specific scent. The Hershey Store in Times Square in New York, for example, drenches the atmosphere with the scent of chocolate.

The academic research has examined the impact of the mere presence of a scent, of the intensity of the scent, of the scent’s perceived pleasantness, and of the scent’s congruity with the object under study. Outcome variables which have been investigated include mood, cognitive elaboration (the depth of processing of words or images), affective response (such as liking or disliking the product or environment), evaluative judgments (such as judgments of the quality of the product or comfort level of the environment), purchase intentions, and other perceptual measures such as perception of time spent, or other behavioral measures such as actual time spent, information search, or choice of brands.

Research findings demonstrate that a pleasant ambient scent in a store can increase the consumer’s actual time spent in the store (Knasko, 1989; Teerling, Nixdorf, and Koster, 1992) or give a shopper the impression that he or she has spent less time in the store than has actually been spent (Spangenberg, Crowley, and Henderson, 1996). Other studies have reported that ambient scent perceived to be pleasant can result in enhanced judgment of the image of the store in which the scent occurs, in enhanced evaluation of the products in the store, and an increase in consumer intention to visit the store (Mattila and Wirtz, 2001; Morrin and Ratneshwar, 2000; Spangenberg et al., 1996).

Whether actual or perceived time in the store, store image, product evaluation, and intention to visit the store translate to an increase in purchase behavior is unclear from the conflicting findings in the literature. Some studies report that ambient scent results in increased sales (Teerling et al., 1992), in increased spending on slot machines (Hirsch, 1995), or in impulse buying when the scent is paired with certain types of music (Mattila and Wirtz, 2001). Other studies have found that ambient scent does not result in increased sales, in the number of items purchased, or in the total amount spent (Knasko, 1989; Schifferstein and Blok, 2002).

While there are many more studies investigating the influence of scent than those listed here, the majority of them have focused on effects other than purchase. In addition, most of the scent research has taken place in the lab, sometimes in “simulated stores,” the methodological problems of which have been outlined in previous research (Stayman and Hagerty, 1985). Most retailers, however, are more concerned with actual sales performance in real stores than with theories about cognitive processes and mediating variables associated with smell and consumer

decision making. Despite the fact that over a decade ago a study in the Journal of Marketing recommended that researchers attempt to collaborate more with practitioners by conducting research in the field rather than in the lab and by studying the effects of scent in a variety of store types (Spangenberg, et al., 1996), the gap between practitioners and academic researchers continues to grow. Since that time there has been no significant increase in the number of studies addressing the effect of scent on purchase under realistic conditions.

Shifting research from the controlled lab environment to the field, with its myriad of uncontrollable factors, however, presents special challenges to the researcher which, if ignored, may threaten to invalidate findings regardless of their apparent significance. Following is one account of the difficulties connected with attempting to close the gap between the field and the lab.

CASE STUDY: OBSTACLES ENCOUNTERED IN FIELD-TESTING THE IMPACT OF SCENT

In a medium-sized southern city, researchers obtained permission from a local supermarket to conduct scent research. The supermarket, part of a national chain, allowed researchers to place scent dispensers at key points throughout the store over several months, allowed student interviewers to monitor the behavior of shoppers and to conduct post-purchase interviews, and allowed researchers to have access to purchase data. Scents of coffee, flowers, body wash, barbecue, and cinnamon buns were dispensed on a rotating basis, and shoppers were asked about what they had purchased (including the brands and products related to the scents), whether they had intended to purchase those products and brands, and whether they noticed any scents in the store.

Customer-related obstacles

Aside from the usual considerations such as different shopping patterns on different days of the week, several customer-related issues and potential obstacles surfaced.

For example, during the time that the scent of cinnamon buns was used in the study, many customers commented favorably on the scent, searched for the source of the scent, purchased packages of cinnamon buns, and, in post-purchase interviews, reported that the scent played a major role in their purchase decision.

One customer, on the other hand, reported that the aroma of cinnamon buns motivated a purchase of sugar-free cookies. The customer returned to the display table of cinnamon buns several times, picked up packages to smell them, then moved to a display of sugar-free cookies and purchased a package. Asked about the choice by an interviewer, the customer remarked that she was diabetic and unable to consume sugar, but that the smell of the cinnamon buns motivated her purchase of the cookies.

Allergies to aromas are also a potential problem in studies of ambient scent or product-specific scent, but in the case study under review, none of the customers reported allergic reactions to the aromas in the store. Parents' having to resist the requests of children, to buy the chocolate or sweets they smell, is also a potential problem that was fortunately not encountered in the present study.

In-store scent technology-related obstacles

Several store-related problems had to be overcome in order to dispense the scents properly. The presence of central air conditioning, the type and placement of the product displays, and the location of electrical outlets presented problems.

The store's central air conditioning system ran fairly consistently over the several-week study period. Researchers spent considerable time gauging the strength and direction of the air flow to determine how best to allow the scent to ride the airwaves to a destination in the vicinity of the target products and brands. When the thermostat-driven air reached designated temperatures and air flow temporarily ceased, however, scents may not have been dispensed to target areas as planned.

In the present study, electric fans were to be used to dispense fragrance to key areas, but not every area of the store had electrical outlets. Where it was not possible to use fans, researchers resorted, therefore, to a backup plan using battery-operated dispensers instead. Unfortunately, because the batteries were not long-lasting, researchers had to replace them at least once a day. Where fans could be used, they often had to be placed far from the target products and brands, which caused the fragrances to be less intense once they reached their destination.

For a body wash scent, the product display posed a problem. The body wash containers were placed on spring-loaded shelves which allowed no room for the fragrance dispensers. Called upon to be resourceful, researchers emptied the nearest usable shelf space and placed the scent holders as close to the target product as possible.

In-store competing aromas

Researchers encountered several unanticipated problems involving competing aromas in the store. Mondays were “Cheap Chicken Day” in the supermarket being used in the study, where chicken was cooked all day long. Researchers were forced so suspend the scent study on Mondays.

A second problem involved the store’s French bread, baked fresh daily in the store. The bread was placed in standing metal shelves and rolled onto the floor, often near the chocolate display where fragrance was being dispensed. The smell of the fresh bread overwhelmed the scent of the chocolate.

Finally, there were days during which unpleasant odors emanated from the fish counter. When target scents could be placed a sufficient distance from the fish counter, the scent posed no problem. There were, however, vain attempts to dispense a barbecue scent at the adjoining meat counter, but the fish odor was too strong to overcome.

In-store personnel-related obstacles

At one point, one of the floor managers began searching through the products in the chocolate display, picking up and examining a bag at a time. She remarked that one of the bags must have been broken, because she could smell the chocolate, and was determined to find the broken bag.

A second personnel-related incident involved the bakery manager, who became angry with the research program because he could not keep up with the demand for the cinnamon buns.

Scent technology obstacles

Scent wafers for many of the dispensing machines required replacement every other day. As noted above, fragrance dispensers in many cases also required that batteries be replaced at least every day. Embedded strips with motion sensors can reduce the need for battery replacement, if target products are in less heavily trafficked areas.

One of the scents used in the study, the scent for the body wash product, was a poor match for the brand. The scent could not be easily identified, and the researchers found that it did not correspond to the brand it was intended to promote.

Countermeasures by competitors

While many of the in-store obstacles may be overcome, actions of competing brands may not be as easy to control or respond to. A portion of the study, for example, tested the effectiveness of a coffee scent on shopper interest in and purchase of coffee. At times the scent was attributed to a particular brand which had agreed to participate in the study. Well into the study, unfortunately, the targeted brand’s major competitor initiated a promotion of its own, dropping prices across their product line.

Other external variables

Various holidays and special events had close connections with some of the products represented by scents being used in the study. One would expect that sales of chocolates and flowers may be higher on Valentine's Day and Mother's Day, regardless of scents being dispensed in the store. On Father's Day, as well as the days during which the local University's participation in major sporting events was televised, the sale of meat and French bread intended for family barbecues was high.

A second external variable forced the researchers to abandon one of their intended tests of the effectiveness of the scent of roses. Distributors did not deliver roses to the supermarket until three weeks after Valentine's Day.

Caveat

Finally, repeated attempts to test various scents in a single retail location, and difficulty in directing scent to the target product, increased the potential for consumers who were regular shoppers at the store to "catch on" to the purpose of the study and to behave like "good subjects," responding in ways they thought the researchers wanted them to respond. Contamination caused by these demand characteristics is difficult to avoid when only one location is used over an extended length of time.

SUMMARY

The obstacles cited above provide several illustrations of the problems inherent in all field studies: lack of control of the independent variables and interference of extraneous variables, both of which threaten to invalidate the findings of the study. Applied specifically to the current investigation of the impact of product-specific scent on shopping behavior in a retail environment, the problems took many forms.

In the present case study, lack of control of the independent variable occurred in the form of inconsistency in delivery of the scent, inconsistency of the intensity of the scent, and inconsistency of the scent's match to the target product. The inconsistencies were related to problems with the delivery systems themselves, the configuration of electrical outlets in the store, the operation of the store's thermostat-controlled air conditioning system, and problems with the amount of space available in the product display areas.

Extraneous variables which interfered with the study included competing scents attributable to other products in the store, medical conditions of customers, lack of understanding or cooperation among store employees, heavy price discounts and promotions by competitors of the brands under study, holidays or special events traditionally connected with increased sales of products under study, and product unavailability due to inefficiencies in distribution.

IMPLICATIONS FOR RESEARCHERS

Previous research confirms that problems encountered in the present case may influence research results. When the aroma is not congruent with the targeted product, for example, shoppers have been shown to spend less time processing information about products and to be less likely to exhibit variety seeking behavior than when the scent is congruent with the product category (Mitchell, Kahn, and Knasko, 1995; Peck and Childers, 2008). Therefore, researchers must attempt to design their studies to prevent invalidation of results. Depending on the number of independent variables, extraneous variables, and outcome variables under study, researchers can implement a type of factorial design or Latin Square design. Ideally, researchers can obtain permission from matching retail outlets, such as individual stores that are part of a supermarket chain, for simultaneous use, and rotate treatment conditions to identify the effect on outcome variables.

Naturally, field studies investigating the impact of scent will be more time-consuming and more expensive to conduct than lab studies, but the advantages of the field experiment are the ability to generalize results to other settings and the chance to realistically predict outcomes in future applications.

IMPLICATIONS FOR RETAILERS

Retailers who wish to conduct studies or to use ambient or product-related scent can benefit from an understanding of the obstacles they are likely to face, as outlined in the present study. They run the risk of alienating consumers (who, for example, may smell cinnamon buns, but be unable to find them), alienating employees (who cannot keep up with the demand for cinnamon buns) and alienating suppliers (who, for example, sell ginger snaps and cannot compete with the appealing scent of cinnamon buns). Retailers should consider educating their employees regarding the appropriate response to the research program or to the use of scent, so as to assist in the application of scent without revealing its use to consumers, to avoid confusion and anger among employees as well as demand characteristics among consumers. Retailers will need to decide whether they are interested in affecting sales of a product category or of a specific brand. If there is interest in influencing brand choice, the retailers may need to negotiate with suppliers regarding whose scent will be featured for what period of time.

Ideally, future studies of the impact of ambient and product-specific scent would allow comparison of findings from the lab and the field, providing greater utility for retailers.

AUTHOR INFORMATION

Lucy L. Henke, Ph.D., is Associate Professor in the Department of Marketing and Hospitality at the University of Louisiana at Lafayette. She served as Manager of Network Television News Audience Research at ABC in New York, and Senior Analyst at Louis Harris and Associates, also in New York. Her research interests include children's perceptions of advertising, impact of new media technologies, entertainment marketing, and consumer consciousness. She has authored or co-authored numerous articles in journals including the *Journal of Advertising*, *Journal of Advertising Research*, *Journal of Marketing*, *Music Business Journal*, and *Journal of Broadcasting and Electronic Media*.

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Frank Wallace has over 35 years in retailing and healthcare and has consulted for many firms during that time. He has an MBA and a Masters in Health Services Administration and has been teaching either as an adjunct or full time instructor for over 10 years. One of the courses that Frank teaches, Consumer Behavior, made him interested in Scent research at the Point of Purchase. He is Assistant Dean at the B.I. Moody College of Business Administration at the University of Louisiana at Lafayette.

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